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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,923	12/01/2003	Shenghong A. Dai	U 0147915-5	3231
140 7590 01/03/2007 LADAS & PARRY 26 WEST 61ST STREET NEW YORK, NY 10023			EXAMINER NILAND, PATRICK DENNIS	
			ART UNIT	PAPER NUMBER
			1714	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/03/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/724,923

Applicant(s)

DAI ET AL.

Examiner

Patrick D. Niland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-51 and 57-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-51 and 57-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. The amendment of 10/10/06 has been entered. Claims 24-51 and 57-66 are pending.

2. Claims 24-51 and 57-66 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the disclosed "heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition", does not reasonably provide enablement for the full scope of "heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

A. The instantly claimed "heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition" reads on an infinite number of processing permutations, including temperatures, pressures, reaction times, specific ingredients required to give the claimed outcome including catalysts and specific isocyanates and polyols, resulting in a potentially infinite number of reaction schemes which can be performed on the recited compounds (Wands factor A). In re Wands has 8 criteria, (MPEP 2164.01(a)), as shown below.

- (A)The breadth of the claims;
- (B)The nature of the invention;
- (C)The state of the prior art;
- (D)The level of one of ordinary skill;
- (E)The level of predictability in the art;

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(F)The amount of direction provided by the inventor;

(G)The existence of working examples; and

(H)The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

It is noted that the instant claims read on all potential reaction schemes of the recited “heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition” which encompasses an infinite number of reaction schemes (Wands factor A). The specification does not describe how to perform “heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition” for all of the potential reaction schemes other than those specified in the instant specification from the infinite list of such reaction schemes which will give the claimed outcome as required in the instantly claimed invention (Wands factors F, G). It would require an infinite amount of experimentation to determine how to perform all of the reaction schemes encompassed by the instant claims (Wands factor H). Chemistry is an unpredictable art (Wands factor E). The ordinary skilled artisan would not know all of the ways, other than those specified by the instant specification, that they could heat “for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition” since the variations in reaction schemes are so vast, the outcome is so unpredictable for each, and the instant specification does not give sufficient guidelines so that ordinary skilled artisan can perform the full scope of the instantly claimed inventions (Wands factors C, D, E, F, G, and H). The enabling disclosure is not commensurate with the full scope of the claimed “heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition” therefore.

The cited prior art heats the reaction mixture as noted in sections such as Thorne et al., column 4, lines 42-44 and the examples and Rosthauser et al., column 8, lines 28 and 63; column 9, line 10 and column 10, line 1. The applicant's argument that "heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition" is not commented on in the office action is taken as an indication that the heating steps of the patentee's are believed by the applicant's representative to not "increase the numbers of isocyanate functional groups contained in said composition". If not all heating steps give the required outcome of the instant claims, it is incumbent on the applicant to teach the ordinary skilled artisan how to obtain this outcome within the full scope of the instant claims under the above cited statute.

3. Claims 24-51 and 57-66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The instant claims 32-34 recite a molecular weight regarding a polymeric compound without stating whether number average, weight average, viscosity average, z average, etc. is intended. The instant specification does not enable a polydispersity of exactly one and a polydispersity of exactly one is believed to be unachievable. It is therefore unclear what type of polymer molecular weight is intended. The significance of this is well known and taught in general polymer texts. Cancellation of claims 9-11 is noted. The applicant's arguments do not clarify whether weight or number average molecular weights are intended. These molecular weights may differ significantly depending on the polydispersity, which may give a difference of

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a factor of 2-20. The prior art cited by the examiner is not under the instant examination under the current state of the art. This rejection is therefore maintained.

B. The instant claims 38-39 recite tradenames. The use of tradenames in the claims is improper because the manufacturer is under no obligation to continue making these tradenames nor to continue making the same thing under these tradenames. A change in or discontinuance of these tradenames would render the claims meaningless. See MPEP 608.01(v) [R-2] Trademarks and Names Used in Trade. The issue of claimed tradenames is clearly stated above and established in the MPEP. Whether prior art references tradenames is not germane to the issue of claimed tradenames. The applicant has not pointed out where the referenced trade literature specifically defines what the claimed tradenames were at the time of filing the instant application and this specific definition is not seen by the examiner. This rejection is therefore maintained.

C. The instant claims require "heating for conducting a subsequent reaction so as to increase the numbers of isocyanate functional groups contained in said composition". It is unclear over what comparison basis the number of isocyanate functional groups is increased. The claims clearly require a reaction between a and c. This will necessarily decrease the NCO groups. Thus, there cannot be more NCO groups than present in a, unless a reaction with the amine groups to give NCO is being required, such as phosgenation thereof.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 24-51 and 57-66 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 5202377 Thorne et al..

Thorne discloses a polyisocyanate mixture falling within the scope of the instant claims at the abstract; column 2, lines 60-68; column 3, lines 1-68, particularly 1-6, 13-14, 15-28, 42-47 which is an aliphatic polyisocyanate because the NCO groups are attached to aliphatic moieties, 47-65, and 66-68; column 4, lines 1-13 where Z is NH falls within the scope of the instant claims and encompasses the instantly claimed EO:PO ratios, 14-24 which encompasses the instantly claimed Jeffamines, 25-32, 42-56; column 5, lines 9-68, particularly 38-58; column 6, lines 1-43; and the remainder of the document. Column 4, lines 42-44 and the examples heat the reaction mixture, which will necessarily give an "increase" of "the numbers of isocyanate functional groups contained in said composition" relative to something, such as a further reaction of the reaction mixture with other components which consume the NCO groups. The reaction itself is also exothermic, which will heat the mixture. It is therefore not seen that the heating of the patentee does not necessarily give the claimed limitation associated with heating. The applicant provides no probative evidence to the contrary. The compounds of the patentee are clearly dispersible in water which itself counters the applicant's arguments bridging pages 10-11 of their response. US Pat. Nos. 6384175 6426414 are not cited in this rejection and are not seen as limiting the teachings of the cited prior art. The moiety produced by the patentee by reaction of

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polyisocyanate with the Jeffamines of column 4 is the instantly claimed reaction product. See the entirety of columns 3 and 4. Addition of polyisocyanate ii increases the NCO count over that of the reaction product i and heating is performed necessarily due to the exothermic reaction. The applicant's arguments do not address this issue. It is not seen that no biuret or polyuret forms in the heating of the patentee particularly where the listed catalysts are used that are known to catalyze these reactions. Furthermore, it is not seen that the heating of the instant claims requires these reactions since they would decrease the NCO groups, not increase them. The polyisocyanates of the patentee are clearly emulsifiable in water and it is not seen that they are of high viscosity, though the instant claims recite no viscosity. The applicant's arguments are not commensurate in scope with the instant claims and the cited prior art. Based on the applicant's arguments, heating of the patentee is expected to give some biuret or polyuret, particularly where catalysts of the patentee are used based on the kinetics and thermodynamics of these reactions. There is no probative evidence to the contrary. The instant claims 47-48 are directed to the compositions per se. Not the methods of making them. There is no probative evidence that the claimed reaction temperatures give a different composition than those of the patentee, particularly where catalysts of the patentee are used. This rejection is therefore maintained.

7. Claims 24-25, 30-48, and 57-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 5202377 Thorne et al..

Thorne discloses a polyisocyanate mixture falling within the scope of the instant claims at the abstract; column 2, lines 60-68; column 3, lines 1-68, particularly 1-6, 13-14, 15-28, 42-47 which is an aliphatic polyisocyanate because the NCO groups are attached to aliphatic

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moieties, 47-65, and 66-68; column 4, lines 1-13 where Z is NH falls within the scope of the instant claims and encompasses the instantly claimed EO:PO ratios, 14-24 which encompasses the instantly claimed Jeffamines, 25-32, 42-56; column 5, lines 9-68, particularly 38-58; column 6, lines 1-43; and the remainder of the document. Column 4, lines 42-44 and the examples heat the reaction mixture, which will necessarily give an "increase" of "the numbers of isocyanate functional groups contained in said composition" relative to something, such as a further reaction of the reaction mixture with other components which consume the NCO groups. The reaction itself is also exothermic, which will heat the mixture. It is therefore not seen that the heating of the patentee does not necessarily give the claimed limitation associated with heating. The applicant provides no probative evidence to the contrary. The compounds of the patentee are clearly dispersible in water which itself counters the applicant's arguments bridging pages 10-11 of their response. US Pat. Nos. 6384175 6426414 are not cited in this rejection and are not seen as limiting the teachings of the cited prior art. The moiety produced by the patentee by reaction of polyisocyanate with the Jeffamines of column 4 is the instantly claimed reaction product. See the entirety of columns 3 and 4. Addition of polyisocyanate ii increases the NCO count over that of the reaction product i and heating is performed necessarily due to the exothermic reaction. The applicant's arguments do not address this issue. It is not seen that no biuret or polyuret forms in the heating of the patentee particularly where the listed catalysts are used that are known to catalyze these reactions. Furthermore, it is not seen that the heating of the instant claims requires these reactions since they would decrease the NCO groups, not increase them. The polyisocyanates of the patentee are clearly emulsifiable in water and it is not seen that they are of high viscosity, though the instant claims recite no viscosity. The applicant's arguments

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are not commensurate in scope with the instant claims and the cited prior art. Based on the applicant's arguments, heating of the patentee is expected to give some biuret or polyuret, particularly where catalysts of the patentee are used based on the kinetics and thermodynamics of these reactions. There is no probative evidence to the contrary. The instant claims 47-48 are directed to the compositions per se. Not the methods of making them. There is no probative evidence that the claimed reaction temperatures give a different composition than those of the patentee, particularly where catalysts of the patentee are used.

It would have been at least obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed combinations of ingredients in the compositions of the patentee because they are encompassed by the patentee and would have been expected to give the properties described by the patentee. For the reasons stated above, this rejection is maintained.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick D. Niland whose telephone number is 571-272-1121. The examiner can normally be reached on Monday to Thursday from 10 to 5.

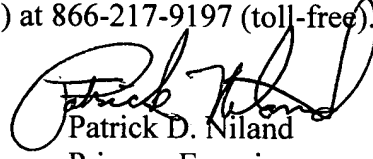
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick D. Niland
Primary Examiner
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